

Details

Imaging Center Essen (IMCES)

The Imaging Center Essen (IMCES) is an Imaging Core Facility, which is supported by the Medical Faculty of the University Duisburg-Essen and provides complex imaging modalities on the campus of the University Hospital Essen and on the campus of the University in Essen. In 2013, the IMCES Light Microscopy Unit (LMU) was initially established, equipped with state-of-the-art widefield and confocal microscopes and also enabling scientists to use superresolution microscopy (STED, PAL-M and SIM) and multiphoton microscopy. Furthermore, the LMU of the IMCES operates a light-sheet microscope, a S2 cell sorter, a whole-body fluorescence and luminescence imager and a pre-clinical ultrasound machine. In 2016, the IMCES was expanded to include the Electron Microscopy Unit (EMU), which currently operates a 120 kV TEM with cryo-tomography equipment and a two-beam SEM for FIB/SEM tomography in addition to routine equipment for sample preparation for (cryo) electron microscopy. Besides the imaging systems, the IMCES runs advanced computer equipment and image analysis software to ensure that the image material can be processed according to present day standards.

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Host Institution

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Deutschland
<https://www.uk-essen.de/forschung-und-lehre/>

Scientific Domain

Primary Subjects:

- Biology
- Medicine

Secondary Subjects:

- Chemistry
- Materials Science and Engineering

Category

Biomedical Imaging Facilities

Scientific Services

Primarily, the IMCES understands its task to be to provide users with functional equipment on which measurement data can be collected according to good scientific practice. These include, in addition to the necessary equipment maintenance and the coordination of service work, also the project-related advice of the users, their instruction on the relevant equipment and also the assistance with common acquisition and evaluation processes. The use of the LMU is usually self-sufficient in nature, whereby users can independently book and use the corresponding devices via an online booking system. On the one hand, also the EMU offers this form of use. However, all work steps in the electron microscopy sample processing and analysis can also be booked as a full service, in which the work is carried out by the EMU staff. The extent of instrument/service usage is metered via the online booking system and charged automatically according to hourly rates. In addition to the routine operation as a service facility, the IMCES is integrated in several places in the student education to train local students in the use of modern imaging techniques and to show them the potential of these systems.

Scientific Equipment

- Leica SP8 confocal microscope with STED, FLIM and heated chamber.
- Zeiss ELYRA PS.1 confocal microscope with PALM/STORM/SIM
- Zeiss AxioObserver microscope with Apotome
- LaVision BioTec UltraMicroscope II Light sheet microscope
- Leica SP8 confocal microscope with MP and FLIM
- Visualsonics Vevo 2100 'small animal' ultrasound
- PerkinElmer IVIS Lumina II 'small animal' fluorescence and luminescence imager
- BD Biosciences FACS Aria III cell sorter
- JEOL JEM-1400Plus TEM with Gatan Model 626 cryo-transfer system
- Zeiss Crossbeam 540 FIB/SEM with Quorum PP3010T
- Leica EM UC7 with FC7 cryo-ultramicrotome
- Leica EM GP Plunge Freezer
- Cressington 208HR and Quorum Q150T-ES Sputter Coater
- Polaron CPD7501 critical-point-dryer
- PELCO Biowave microwave

Keywords

- intravital 2-photon microscopy
- live cell time-lapse imaging
- superresolution microscopy
- TEM tomography
- cryo-electron microscopy
- 3D image reconstruction
- whole organ light sheet microscopy
- fluorescence lifetime imaging microscopy (FLIM)
- cell sorting

Networks

German BioImaging

<http://www.germanbioimaging.org>

Users per annum

Internal Users: 163 im Jahr 2018

External Users in total:

External Users: 5 im Jahr 2018

External Users in the EU: 1 im Jahr 2018

External Users outside of EU: 0 im Jahr 2018